

Potential Effects of PAH and Temperature on Cherry Point Herring

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Abstract

Between 1998 and 2000, three caged mussel studies were conducted in the vicinity of oil refineries along the Cherry Point Reach near Bellingham, WA. In each test mussel survival, bioaccumulation, and growth were measured. The primary purpose of the caged mussel studies was to estimate potential polycyclic aromatic hydrocarbon (PAH) exposure to embryos, larvae, and juvenile herring. The primary purpose of the caged herring embryo studies was to measure biological effects. The caged mussel studies identified both PAH and temperature as potential stressors on the Cherry Point herring stock. Concentrations of PAH measured in mussel tissues and water temperatures measured along the Cherry Point Reach approached those associated with adverse effects on herring embryo-larval development. However, there are uncertainties in these conclusions due to possible differences in exposure pathways between herring embryo-larval stages and mussels as well as the duration, magnitude, and timing of PAH and temperature exposures for embryos and larvae. Other studies have suggested that factors such as food, predation, over fishing, disease and habitat loss are the primary cause for the decline in this stock. This poster summarizes the results of the caged mussel and temperature monitoring and discusses some of the uncertainties in associated laboratory and field studies.